Yotta 3 SAS/SATA JBOD Enclosure

User Guide

Ver. 1.0

Preface

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Notice

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Trademarks

Product names used herein are for identification purposes only and may be the trademarks of their respective companies. All trademarks or registered trademarks are properties of their respective owners.

Regulatory information

For Europe

This drive is in conformity with the EMC directive.

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.

Those limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antennas.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circlet different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

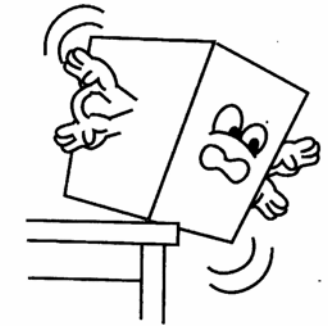
Warning:

A shielded-type power cord is required in order to meet FCC emission limits and also to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used.

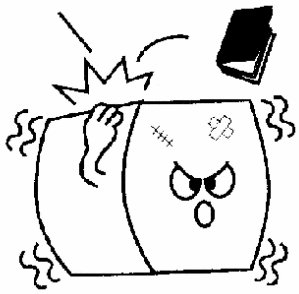
Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

General Safety Guidelines

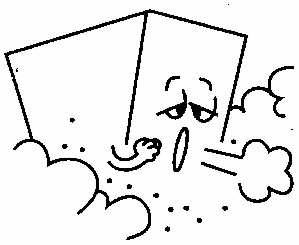


DO NOT place the JBOD System on uneven or unstable work surfaces. Seek servicing if the casing has been damaged.



DO NOT place or drop objects on top of the JBOD System and do not shove any foreign object into it.

DO NOT expose JBOD System to liquids, rain, or moisture.



DO NOT expose JBOD System to dirty or dusty environments.

DO NOT expose JBOD System to magnetic field.

DO NOT expose JBOD System to extreme temperatures (below 5℃ or above 45℃) or to direct sunlight.

About your User's Guide

Welcome to your Hardware Installation Guide. This manual covers everything you need to know in learning how to install your JBOD system. This manual also assumes that you know the basic concepts of JBOD technology.

Guide to conventions

Important information that users should be aware of the following icons:

Caution

This icon indicates the existence of a potential hazard that could result in personal injury, damage to your equipment or loss of data if the safety instruction is not observed.

Note

This icon indicates useful tips on getting the most from your JBOD controller.

Important terms, commands and programs are put in Boldface font.

Screen text is given in screen font.

Table of Contents

Chapter 1

Introduction

This chapter introduces the features and capabilities of JBOD System.

You will find:

- ⇨ **A full introduction to your JBOD SYSTEM**
- ⇨ **Details of key features and supplied accessories**
- ⇨ **A checklist of package contents**
- ⇨ **A checklist of what else you need to start installation**

Feature Highlight

The JBOD SYSTEM is designed to meet today's high volume, performance storage requirements from rapidly changing business environment. It provides a maximum data protection and exceptional performance in a storage subsystem. Target usage ranges are set from small business to departmental and corporate server needs. The JBOD SYSTEM is designed for easy integration, smooth data expansion and server migration.

The JBOD SYSTEM supports the following features:

- Supports SAS 6Gb/SATA 6Gb disk drives.
- One 4x 6Gb wide-port SAS connectors for host connection.
- Two 4x 6Gb wide-port SAS connectors for expander module daisy chain.
- Redundant and Hot Swappable Fan, Power and Drives.
- Completely monitored by In-band SES.
- Configuration and environmental information is accessible either via the Serial Port or RAID System.
- Load sharing, hot swappable redundant power system with PFC function.

Before you begin

Unpacking & Checking The Equipment

Before unpacking the JBOD SYSTEM, prepare a clean, stable surface to put the contents of your JBOD SYSTEM shipping container. Altogether, you should find the following items in the package:

SAS to SAS/SATA JBOD System (Rack-mount)

Y3-12S6JS6 :

- 12 Bay JBOD System x 1
- JBOD system Hardware User Guide (CD media)
- RS232 cable x 1
- SFF-8088 Mini SAS to SFF-8088 Mini SAS Cable x 1
- Power Cord x 2
- FAN x 1
- HDD tray x 13
- Mounting screws (bag) ×1

Y3-16S6JS6 :

- 16 Bay JBOD System x 1
- JBOD system Hardware User Guide (CD media)
- RS232 cable x 1
- SFF-8088 Mini SAS to SFF-8088 Mini SAS Cable x 1
- Power Cord x 2
- FAN x 1
- HDD tray x 17
- Mounting screws (bag) ×1

Y3-24S6JS6 :

- 24 Bay JBOD System x 1
- JBOD system Hardware User Guide (CD media)
- RS232 cable x 1
- SFF-8088 Mini SAS to SFF-8088 Mini SAS Cable x 1
- Power Cord x 3
- FAN x 1
- HDD tray x 25
- Mounting screws (bag) ×1

SAS to SAS/SATA JBOD System (Tower)

Y3-12S6JS6-D :

- 12 Bay JBOD System x 1
- JBOD system Hardware User Guide (CD media)
- RS232 cable x 1
- SFF-8088 Mini SAS to SFF-8088 Mini SAS Cable x 1
- Power Cord x 2
- HDD tray x 13
- Mounting screws (bag) ×1

What else you need

- Hard disk drives (Different JBOD model requires different numbers of HDDs).
- Host computer with SAS interface or Host RAID System with SAS interface
- Static grounding strap or electrostatic discharge (ESD) safe work area
- Dedicated terminal or PC with third party communication software that supports ANSI terminal emulation (required for viewing Monitor Utility)

Note

The hard drives in a JBOD system should match in size and speed. All drives in any array should be identical models with the same firmware version. JBOD system can use any size drive, however the smallest drive will determine the size of the array.

Note

JBOD system does not require the installation of different drivers for use with different operating systems. JBOD system is independent and transparent to the host operating system.

Note

It is often recommended to install the hard drive with same brand, model no., interface and capacity in this JBOD system.

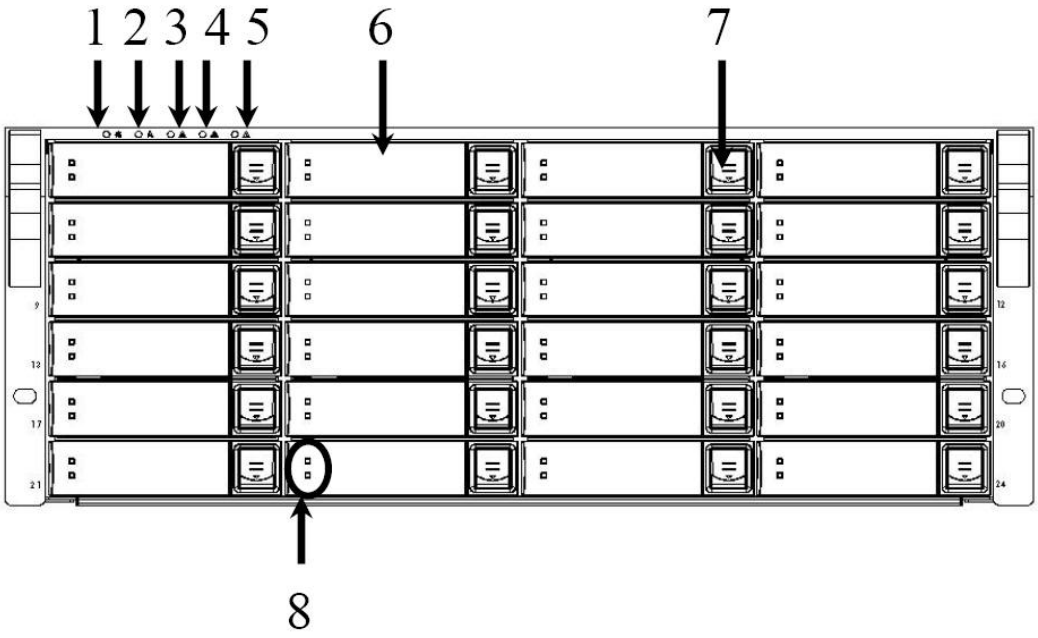
Please do not install SAS and SATA hard drives at the same time, as these hard drives spun at different speed and may lead to compatible issues or performance decline.

Identifying Parts of the JBOD system

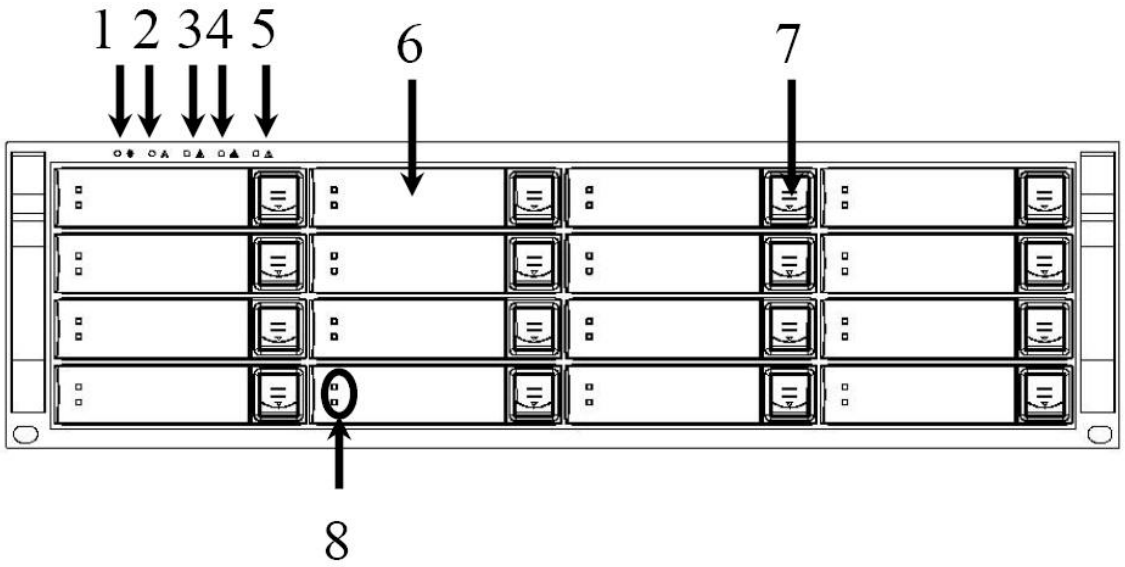
The illustrations below identify the various parts of the JBOD SYSTEM. Get yourself familiar with these terms as it will help you when you read further in the following sections:

Front View

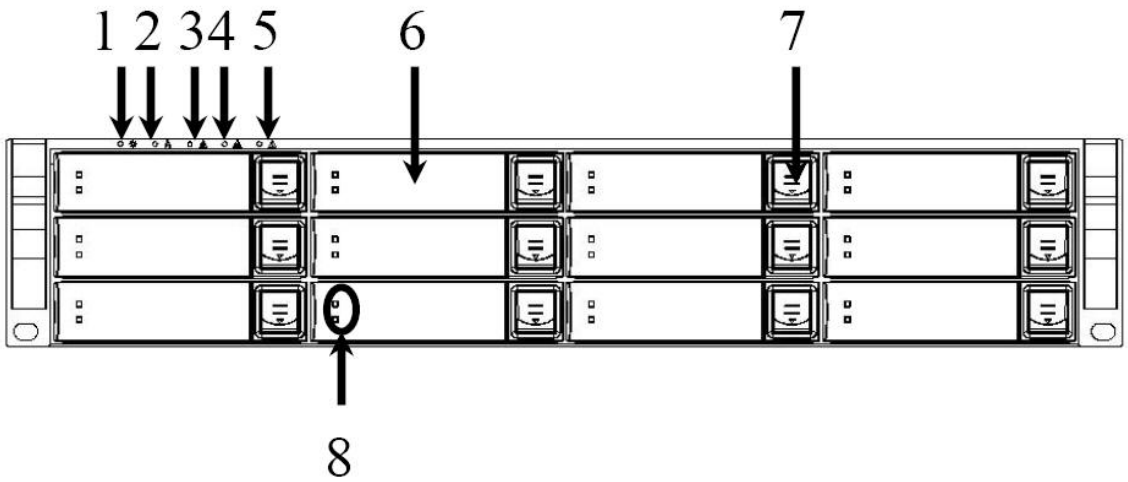
Y3-24S6JS6



Y3-16S6JS6



Y3-12S6JS6



1.  **Power On Indicator (Blue).**

2.  **Host System Access Indicator (Blue + blink).**

3.  **Power Fail Indicator (Red)**

4.  **Fan Fail Indicator (Yellow)**

5.  **Over Temperature Indicator (Yellow)**

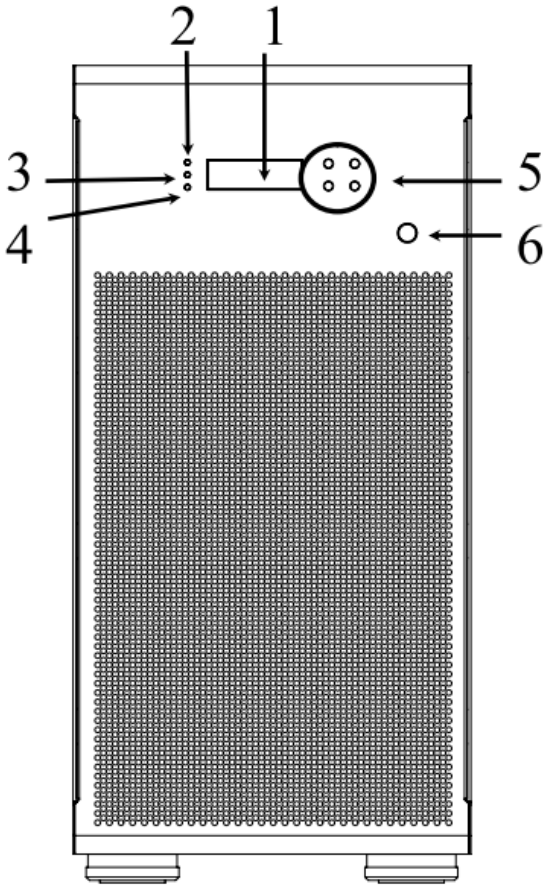
6. Cartridge Handle

7. Lock & Release-Button

8. HDD status LED Indicator

LED	Colors	Indicate
	Blue	HDD On Line
	Blue+ Blink	HDD Access
?	Red	HDD Error

Y3-12S6JS6-D



1. LCD Display Panel

The front panel LCD continuously displays the status of the JBOD system. The following is an example of the JBOD system.

2.  **Power On Indicator (Blue).**

3.  **Power Fail / FAN Fail / Over Temperature Indicator (Red)**

4. **A** **Host System Access Indicator (Blue + blink).**

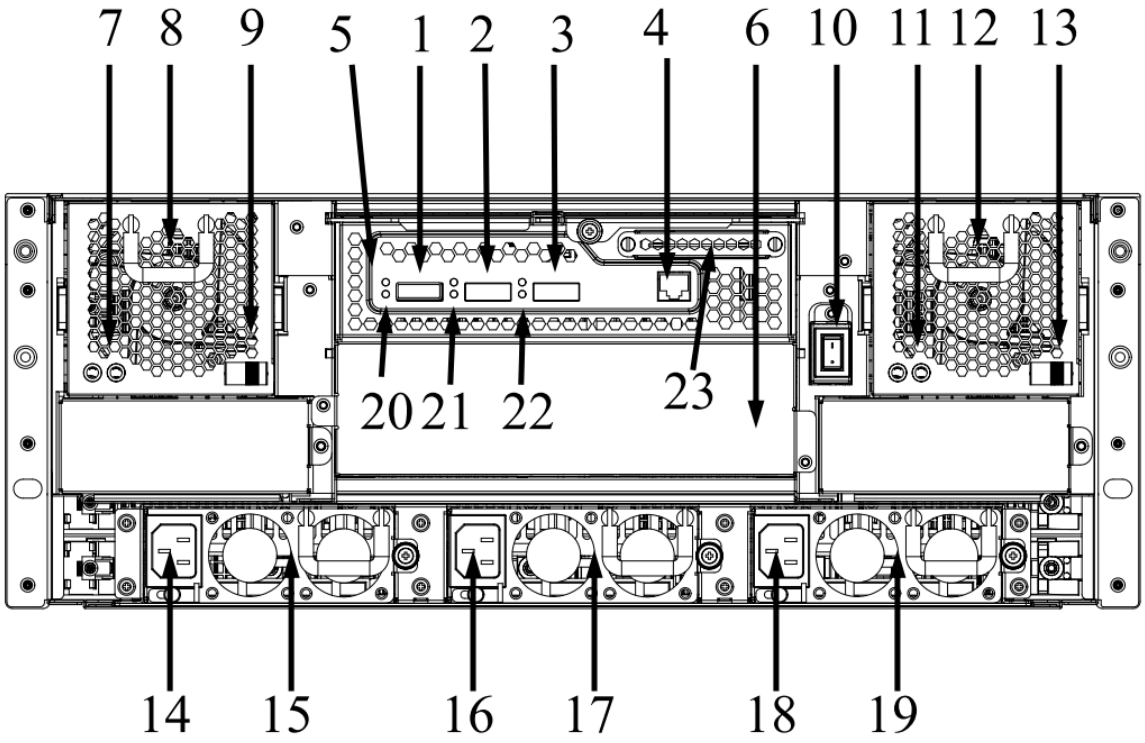
5. Function keys. (ENT, ESC, Scroll up, Scroll Down)

Keys	Descriptions
Up Arrow	To scroll upward through the menu items
Down Arrow	To scroll downward through the menu items
(ENT) Enter	To confirm a selected item
(ESC) ESC	To exit a sub-menu and return to previous menu.

6. Power Switch

Rear View

Y3-24S6JS6



1. SAS CH 1/E (Expand out 2)
2. SAS CH 0 (Expand In)
3. SAS Expand Port (Expand out 1)
4. Terminal
5. Controller Box 1
6. Controller Box 2 (Reserved)
7. FAN failure indicator (Rear / Front)
8. FAN Module 1
9. FAN Module 1 Latch
10. Power Switch
11. FAN failure indicator (Rear / Front)
12. FAN Module 2
13. FAN Module 2 Latch

14. AC inlet 1 & Latch

15. Power Module 1

16. AC inlet 2 & Latch

17. Power Module 2

18. AC inlet 3 & Latch

19. Power Module 3

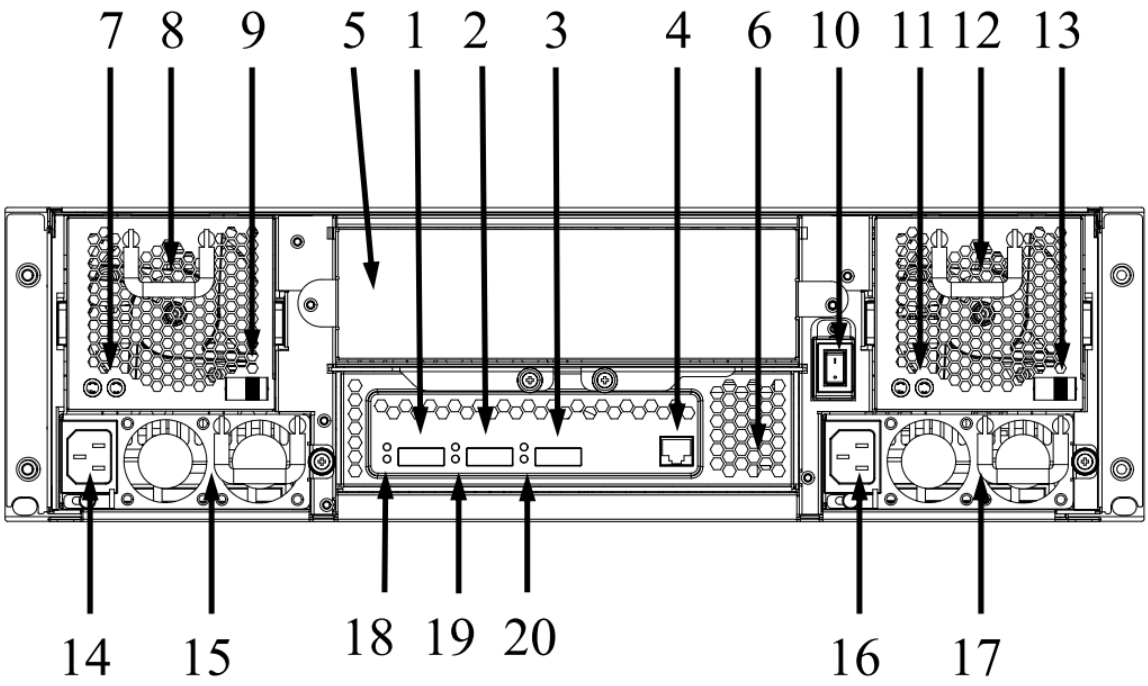
20. SAS CH1/E LED Indicator (Link / Access)

LED	Colors	Indicate
SAS	Green	Link
	Blue + Blink	Access

21. SAS CH0 LED Indicator (Link / Access)

22. SAS Expand Port LED Indicator (Link / Access)

Y3-16S6JS6



1. SAS CH 1/E (Expand out 2)
2. SAS CH 0 (Expand In)
3. SAS Expand Port (Expand out 1)
4. Terminal
5. Controller Box 2 (Reserved)
6. Controller Box 1
7. FAN failure indicator (Rear / Front)
8. FAN Module 1
9. FAN Module 1 Latch
10. Power Switch
11. FAN failure indicator (Rear / Front)
12. FAN Module 2
13. FAN Module 2 Latch
14. AC inlet 1 & Latch
15. Power Module 1
16. AC inlet 2 & Latch

17. Power Module 2

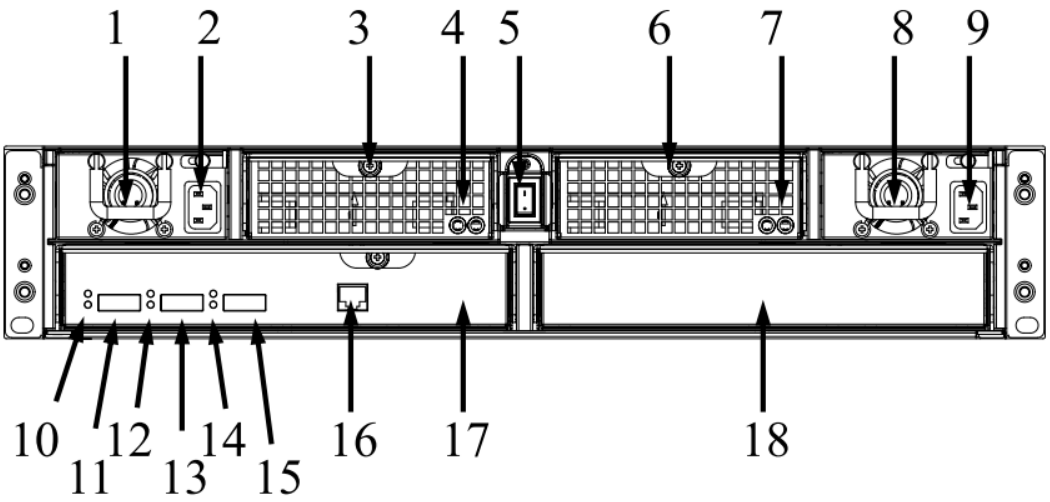
18. SAS CH1/E LED Indicator (Link / Access)

LED	Colors	Indicate
SAS	Green	Link
	Blue + Blink	Access

19. SAS CH0 LED Indicator (Link / Access)

20. SAS Expand Port LED Indicator (Link / Access)

Y3-12S6JS6



1. Power Module 1
2. AC inlet 1 & Latch
3. FAN Module 1
4. FAN failure indicator (Rear / Front)
5. Power Switch
6. FAN Module 2
7. FAN failure indicator (Rear / Front)
8. Power Module 2
9. AC inlet 2 & Latch
10. SAS CH1/E LED Indicator (Link / Access)

LED	Colors	Indicate
SAS	Green	Link
	Blue + Blink	Access

11. SAS CH 1/E (Expand out 2)
12. SAS CH 0 (Expand In)
13. SAS CH0 LED Indicator (Link / Access)

14. SAS Expand Port (Expand out 1)

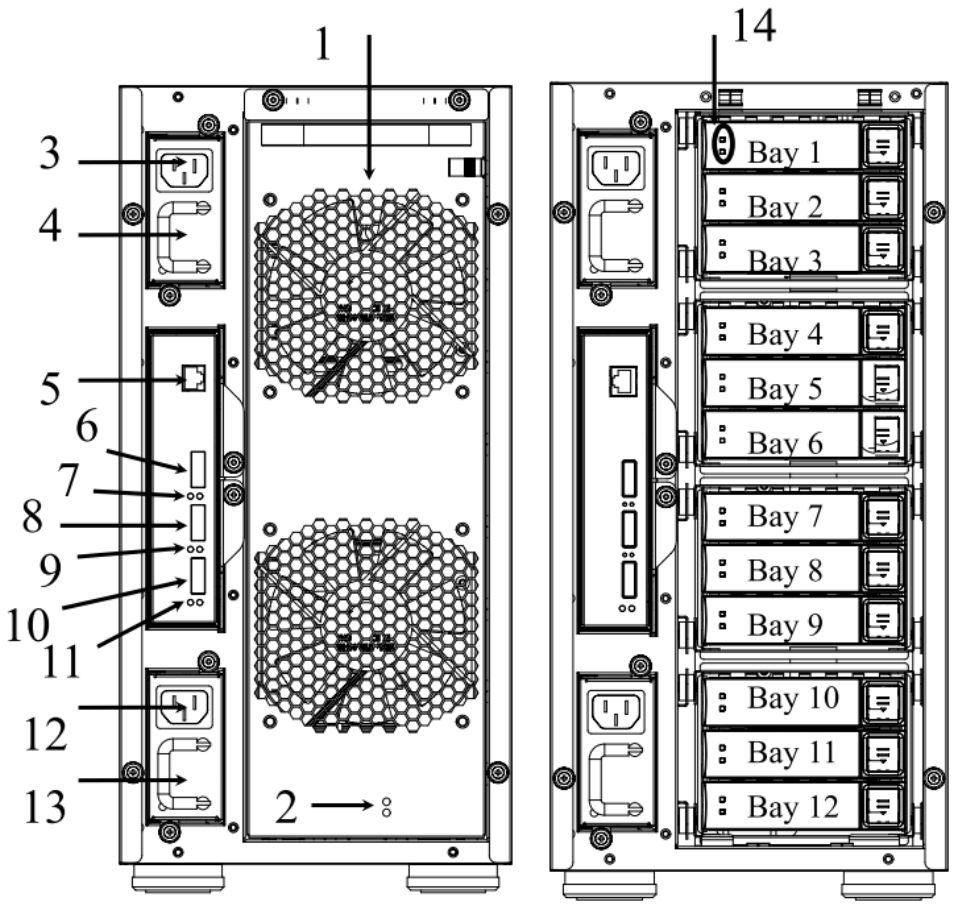
15. SAS Expand Port LED Indicator (Link / Access)

16. Terminal

17. Controller Box 1

18. Controller Box 2 (Reserved)

Y3-12S6JS6-D



1. FAN Module

2. FAN failure indicator

3. AC inlet 1

4. Power Module 1

5. Terminal

6. SAS Expand Port (Expand out 1)

7. SAS Expand Port LED Indicator (Link / Access)

LED	Colors	Indicate
SAS	Green	Link
	Blue + Blink	Access

8. SAS CH 0 (Expand In)

9. SAS CH0 LED Indicator (Link / Access)

10. SAS CH 1/E (Expand out 2)

11. SAS CH1/E LED Indicator (Link / Access)

12. AC inlet 2

13. Power Module 2

14. HDD status LED Indicator

LED	Colors	Indicate
	Blue	HDD On Line
	Blue+ Blink	HDD Access
?	Red	HDD Error

Space Requirement

When selecting a location for your system, be sure to allow an adequate space. The system has vents around it which requires a minimum of 3 inches of unobstructed space for airflow. Openings in the equipment should be blocked, or there may be an issue of reliability problems with your system. A system product should never be place around a radiator or heat register.

System Connection

Connect all cables and power cord as shown below:

Cable	JBOD System	Device	Purpose
RS-232 Cable	Terminal Port	ANSI Terminal or a PC with Terminal emulator.	Debug port, to check and monitor all of status of JBOD system.
Mini SAS Cable	SAS CH0	SAS HBA of Host computer Or SAS RAID System	Host interface between JBOD and Host computer
Power Cord	Power inlet	A/C power outlet	A/C power input
Mini SAS Cable	SAS Expander Port / SAS CH1/E Port	JBOD System	Connect to SAS Expander

Note

Make sure that all the devices are powered off before connecting or removing cables to prevent power spikes which can damage technical components.

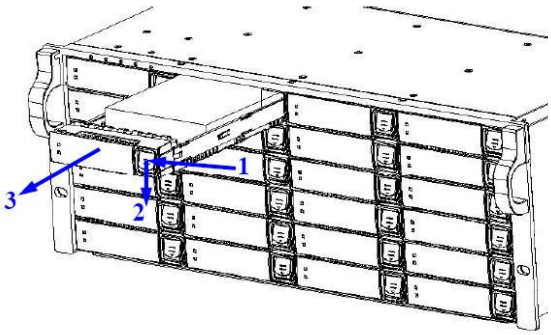
Install hard disks

The JBOD SYSTEM includes 12/16/24 (depending on your models) removable disk cartridges. The following sections describe how to install disks into JBOD SYSTEM subsystems.

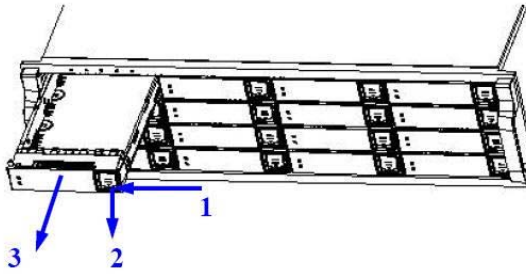
Remove Cartridges

We designed the lock/unlock mechanism on a same button and called *EzSecurLock* . No need a key but with security .

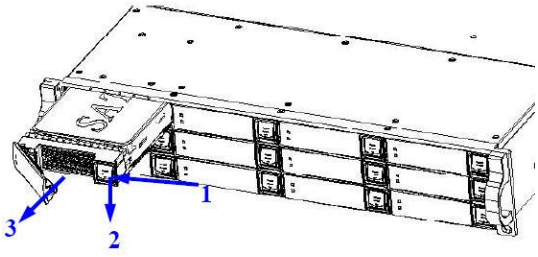
24 Bay



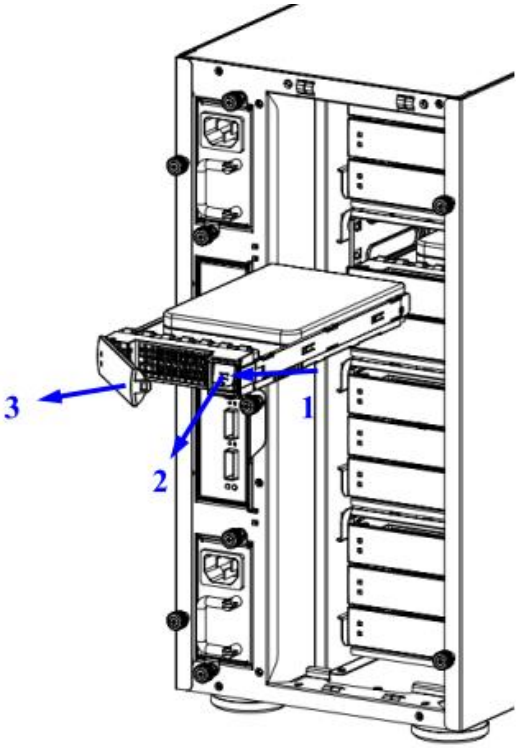
16 Bay



12 Bay



12 Bay Tower



How to remove Cartridges?

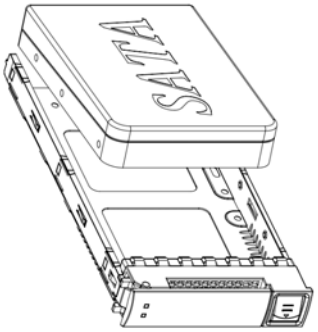
1: Push the button inward

2: While holding in the button, then slide down

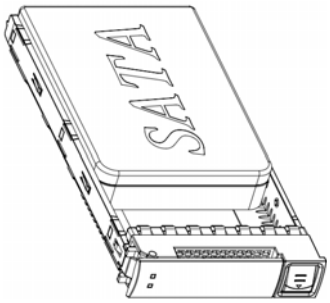
3: The HDD door will be opened automatically.

Install HDDs.

1) Put HDD into the Cartridge.



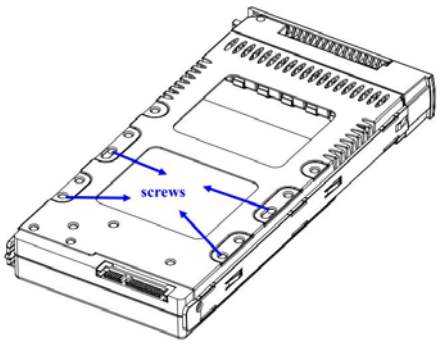
2) Align 4 screws holes on both HDD & Cartridge.



3) Fasten all 4 screws to mount HDD in the cartridge and make sure the HDD is properly tightened.

Install Cartridges

Reversed the procedures of "Remove cartridges" to install cartridges back to JBOD system.



Chapter 2

Hardware Installation

This chapter presents:

- **Instructions in replacing components**
- **Instructions in replacing the hot swappable components**

Replace the Controller

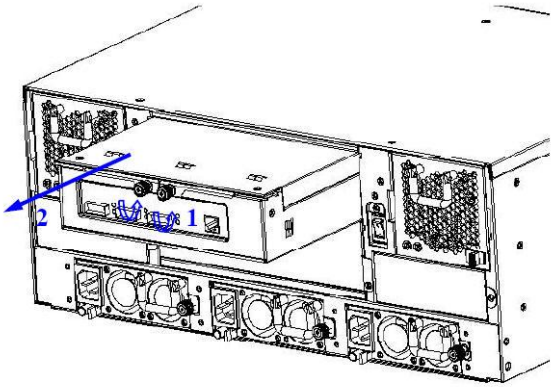
Caution

Read the replacing notices in this chapter before proceeding with replacement.

This section provides instructions for the removal and installation of the JBOD controller components indicated in the figure below. This section is for the reference of engineers. End users should not need to replace or remove components.

Removing the controller from YB-12/YB-16/YB-24 series

Y3-24S6JS6



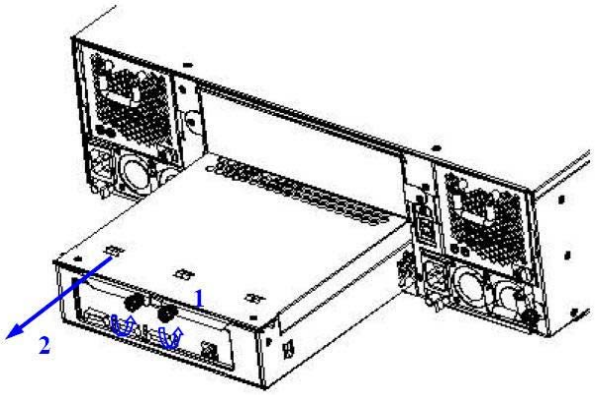
1:

1-1.) Disconnect the host cables

1-2.) Turn anti-clockwise to release the thumb screw.

1-3.) Use the eject kit to remove controller board.

Y3-16S6JS6



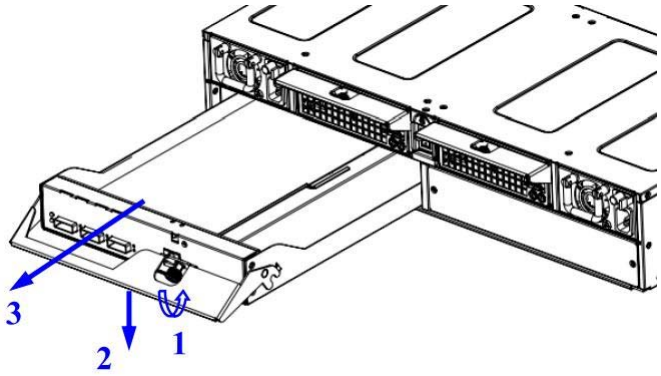
2:

Slide it back and lifting off

Installing the controller into Y3-16S6JS6 (Y3-24S6JS6)

Reverse the procedures as above to install the controller into Y3-16S6JS6 (Y3-24S6JS6).

Y3-12S6JS6



1:

1-1)Disconnect the host cables

1-2)Turn anti-clockwise to release the thumb screw.

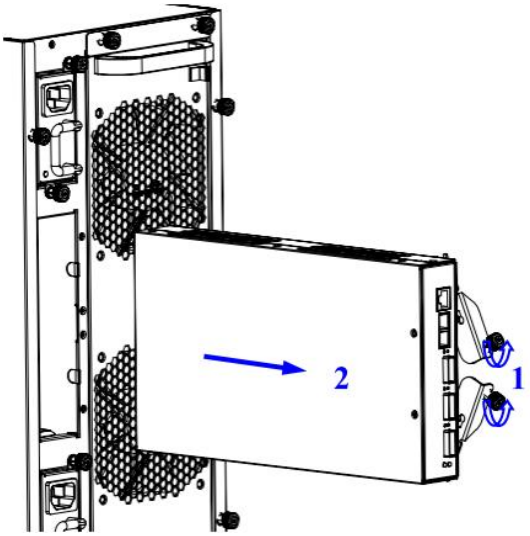
2:

Use the eject kit to remove controller board.

3:

Slide it back and lifting off

Y3-12S6JS6-D



1:

1-1.) Disconnect the host cables

1-2.) Turn anti-clockwise to release the thumb screw.

1-3.) Use the eject kit to remove controller board.

2:

Slide it back and lifting off

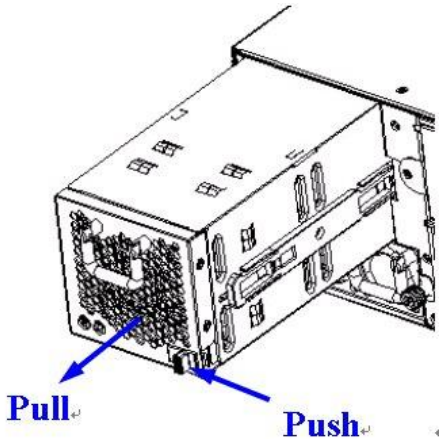
Installing the controller into Y3-12S6JS6

Reverse the procedures as above to install the controller into Y3-12S6JS6

Hot Swapping to replace the Fan Module

This section provides instructions for the removal and installation of the Fan Module indicated in the figure below.

Y3-16S6 & Y3-24S6



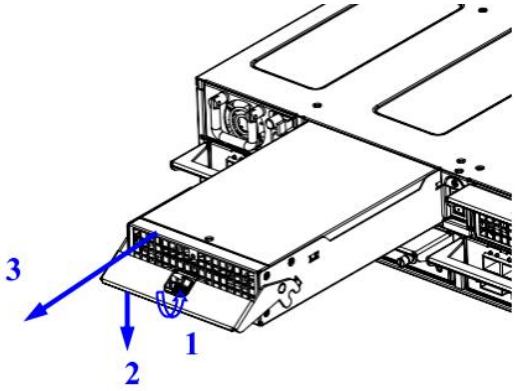
Removing the Fan Module from JBOD system

Remove the Fan modules by pushing the latch to release the lock of module then slide it back and lifting off.

Installing the Fan module into JBOD system :

Insert a Fan module into system, the latch will lock the Fan module automatically.

Y3-12S6 Series



Removing the Fan Module from JBOD system

1.) Turn anti-clockwise to release the thumb screw.

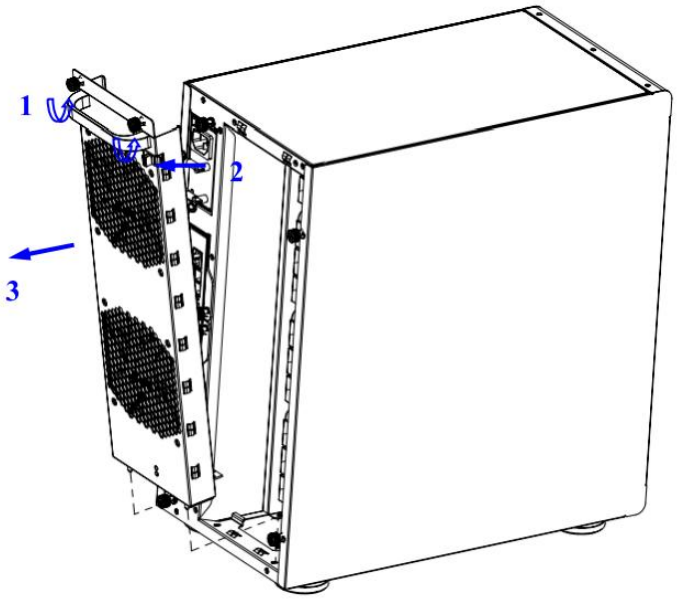
2.) Use the eject kit to remove Fan Module.

3.) Slide it back and lifting off

Installing the Fan module into JBOD system :

Reverse the procedures as above to install the Fan Module into Y3-12S6 Series

Y3-12S6J36 Tower series



Removing the Fan Module from Y3-12S6 Tower series:

1.) Turn anti-clockwise to release the thumb screw.

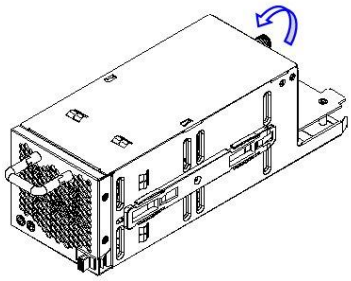
2.) Use the eject kit to remove Fan Module.

3.) Slide it back and lifting off

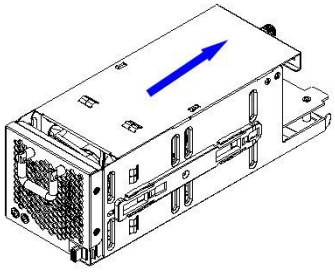
Installing the Fan module into Y3-12S6 Tower series:

Reverse the procedures as above to install the Fan module into Y3-12S6 Tower series

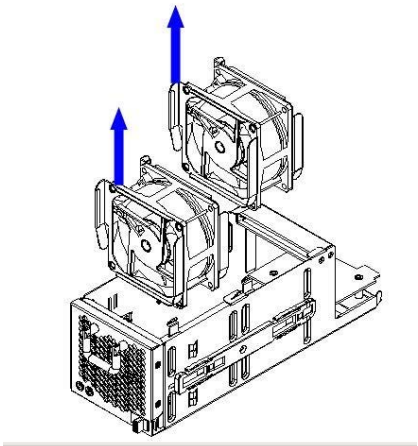
Replacing Fan in a Fan Module:



Step 1: Turn anti-clock wise to release the thumb screw.



Step 2: slide the cover to blue arrow direction .

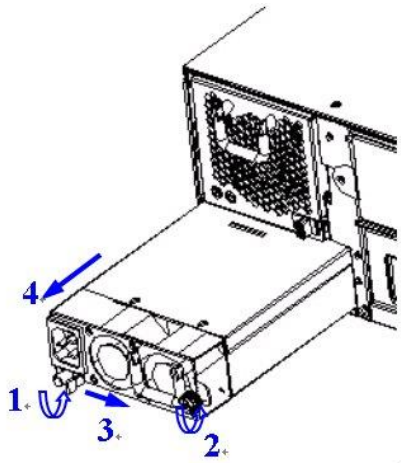


Step 3: Remove the cover of Fan module and lift the Fans.

Hot Swapping to replace the Power Module

This section provides instructions for the removal and installation of the Power Module indicated in the figure below.

Removing the Power Module from JBOD system Y3-16 / 24S6 :

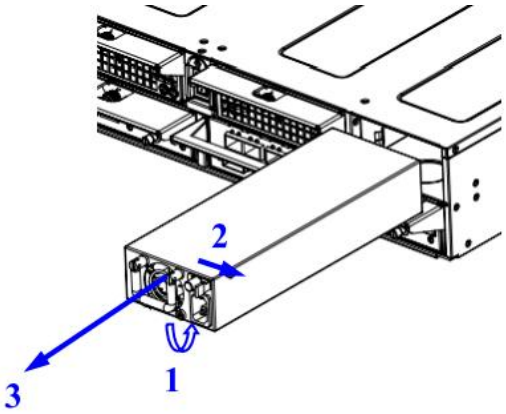


Step1&2: Unscrew the thumb screw.

Step3: Release the latch and hold it at unlock-position.

Step4: Slide it back and lifting off.

Removing the Power Module from JBOD system Y3-12S6 :



Step 1: Unscrew the thumb screw.

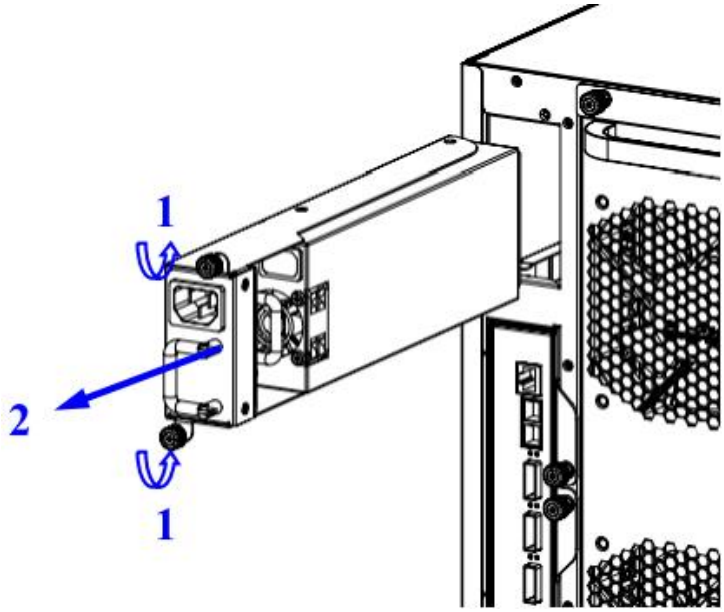
Step 2: Release the latch and hold it at unlock-position.

Step 3: Slide it back and lifting off.

Installing the Power module into JBOD system :

Insert a Power module then fasten the screw.

Y3-12S6 Tower series



Removing the Fan Module from Y3-12S6 Tower series:

1.) Turn anti-clockwise to release the thumb screw.

2.) Use the eject kit to remove Fan Module.

3.) Slide it back and lifting off

Installing the Fan module into Y3-12S6 Tower series:

Reverse the procedures as above to install the Fan module into Y3-12S6 Tower series

Note

The Power indicator will turn bright "Green" to indicate it has powered on

Install the Yotta 3 JBOD System in a Rack

You are shipped with one rack mounting kit for each Yotta 3 JBOD system that you intend to rack mount. Yotta 3 JBOD system is designed for installation into an industry-standard 19-inch rack mount cabinet. Following the use of this section for installing the Yotta 3 JBOD system into a Rack

Step1: Assemble and adjust the slide Rails

a. Insert rear slide rail into left (right) slide rail
b. Adjust the length of the slide rails
c. Install P4*8M Screw and M4 NUT as figure 1
d. Determine where in the rack, the subsystem is going to be. Install the brackets in the rack. Secure each side of the brackets with two position screws through the front rack posts, and two position screws through the rear rack posts. When the rails can be properly fitted to the rack posts, Fasten the screws.

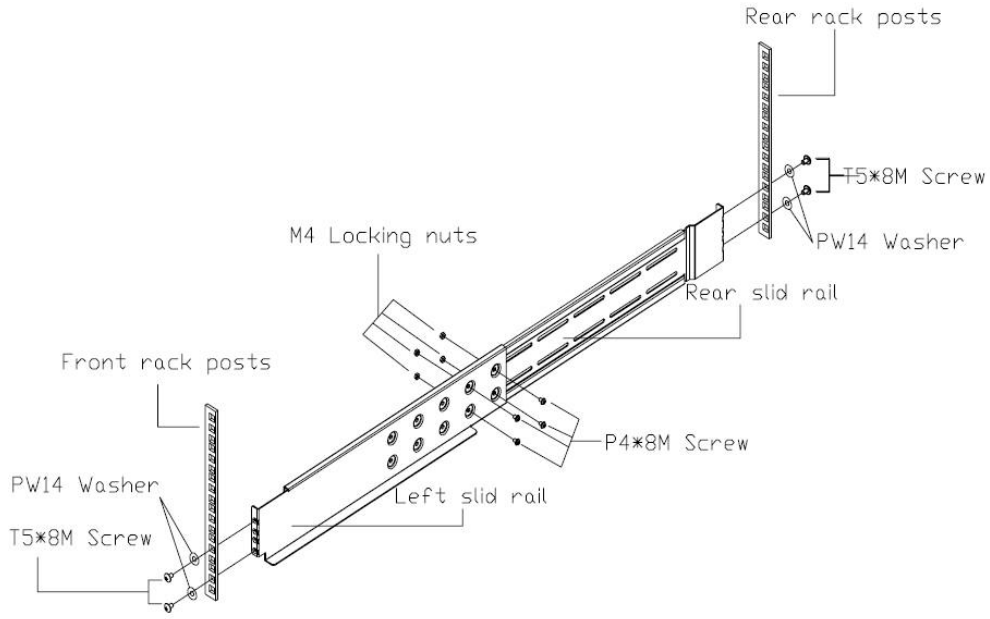


Figure 1: Assembly Slid rail and rack posts

Step 2 : Install Clip nuts

Attach M5 clip nut on each side of the front rack posts.

Clip nuts use the figure 2 below to locate the clip nuts.

Note:

These clip nuts will be used to secure the subsystem through its front ears as will be discussed in Step 4.

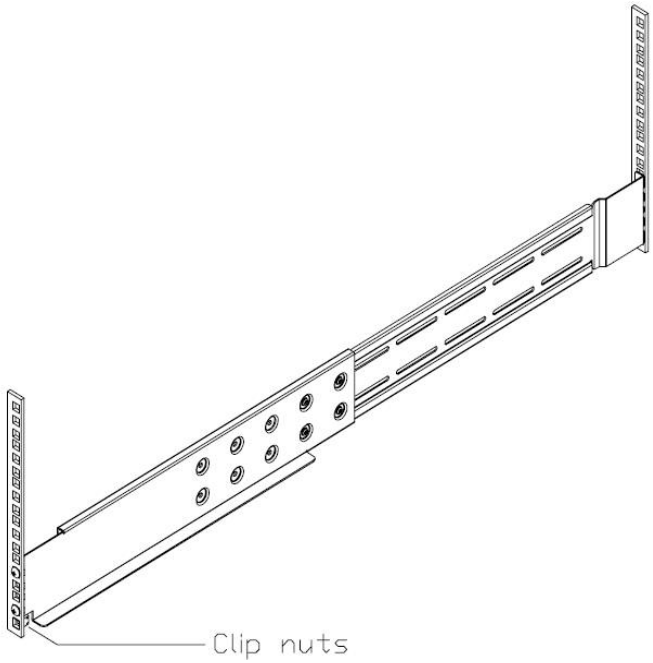


Figure 2: Attach the clip nuts to the rack posts

Step 3 : Slide the subsystem into the server rack

Lift the subsystem enclosure and slide it slowly and gently along the slide rail into the rack.

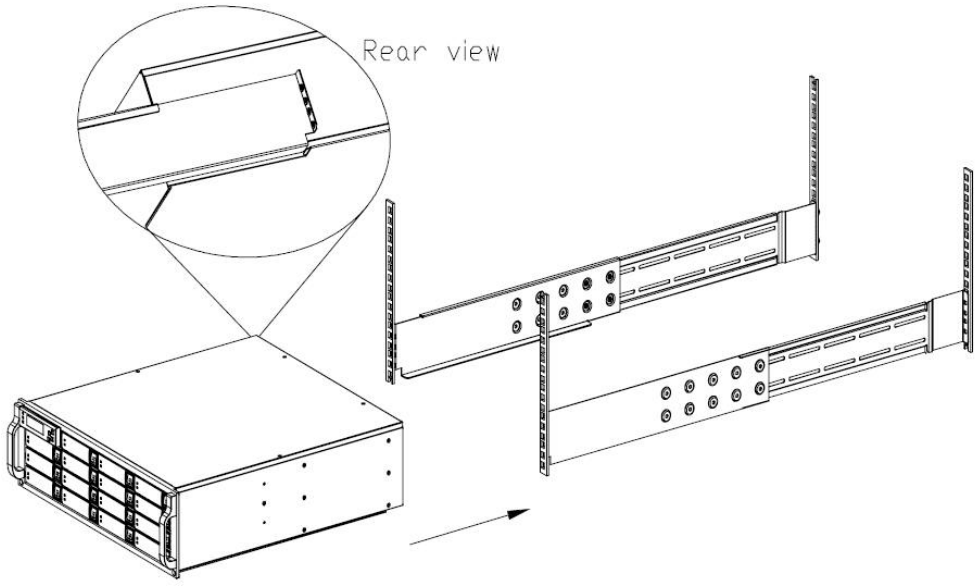


Figure 3: Slide the subsystem into the server rack

Step 4 : Secure the subsystem in the server rack

Fasten two M5 screws through the chassis ears in the front side of the chassis.

The JBOD system should now be securely mounted into the rack.

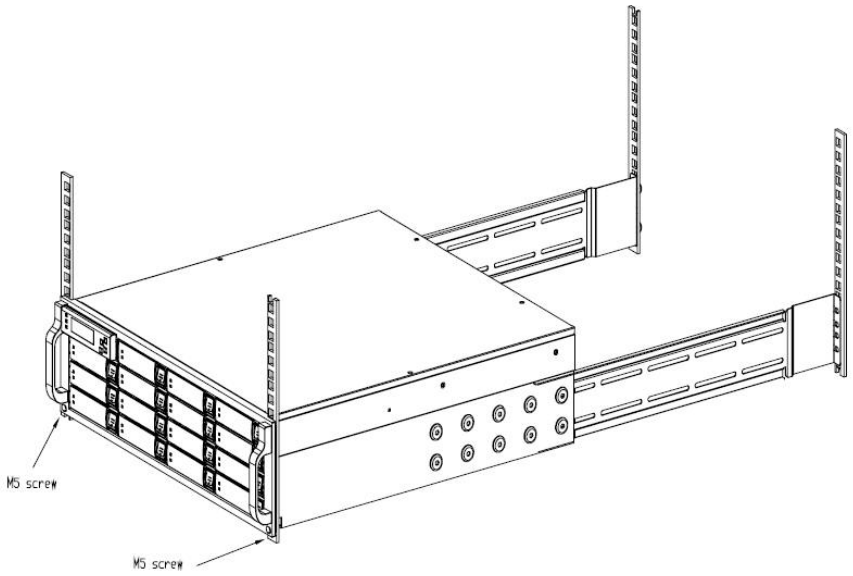


Figure 4: Secure the subsystem in the server rack

Install the JBOD system into the Rack Cabinet

1. **Lift the JBOD system (one person on each side of the JBOD System) and approach the rack with the button-back of the JBOD system facing the end of Slide rails.**
2. **Slide the JBOD system evenly and all the way into the rack cabinet.**
3. **Using the rack mount screws, secure the top and bottom of the JBOD system to the rack frame.**

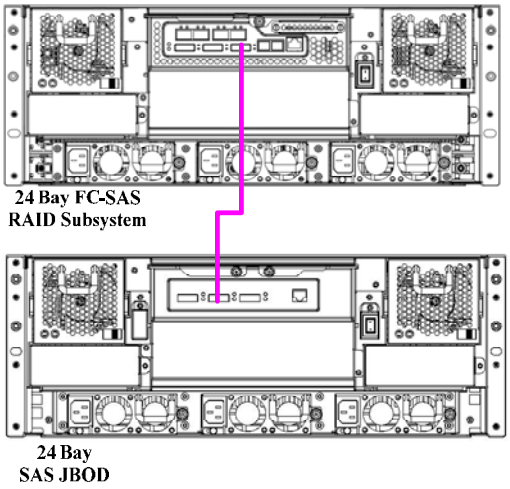
Caution

The JBOD system is heavy; two person are required to move the system in the procedure.

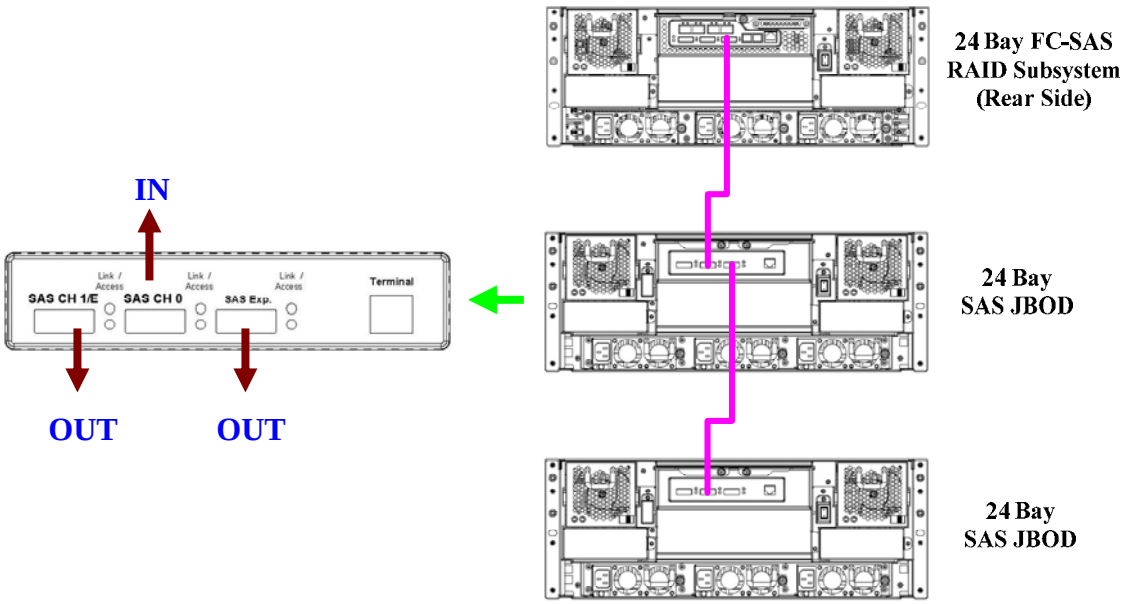
How to deploy the SAS JBOD with Yotta 3 SAS Raid

There are many topologies of SAS JBOD with Yotta 3 SAS Raid. Ways to implement are as below:

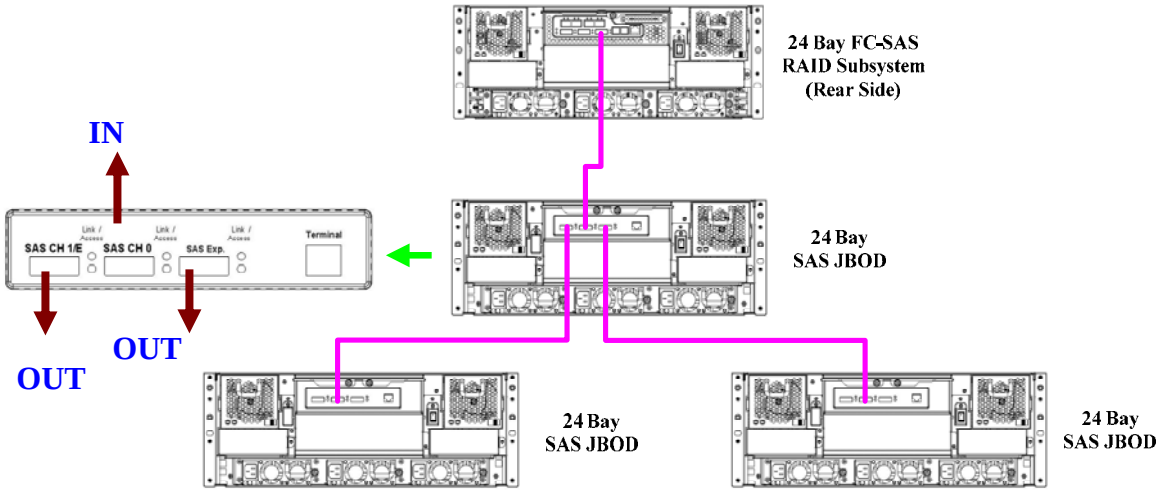
One SAS Raid subsystem with one SAS JBOD



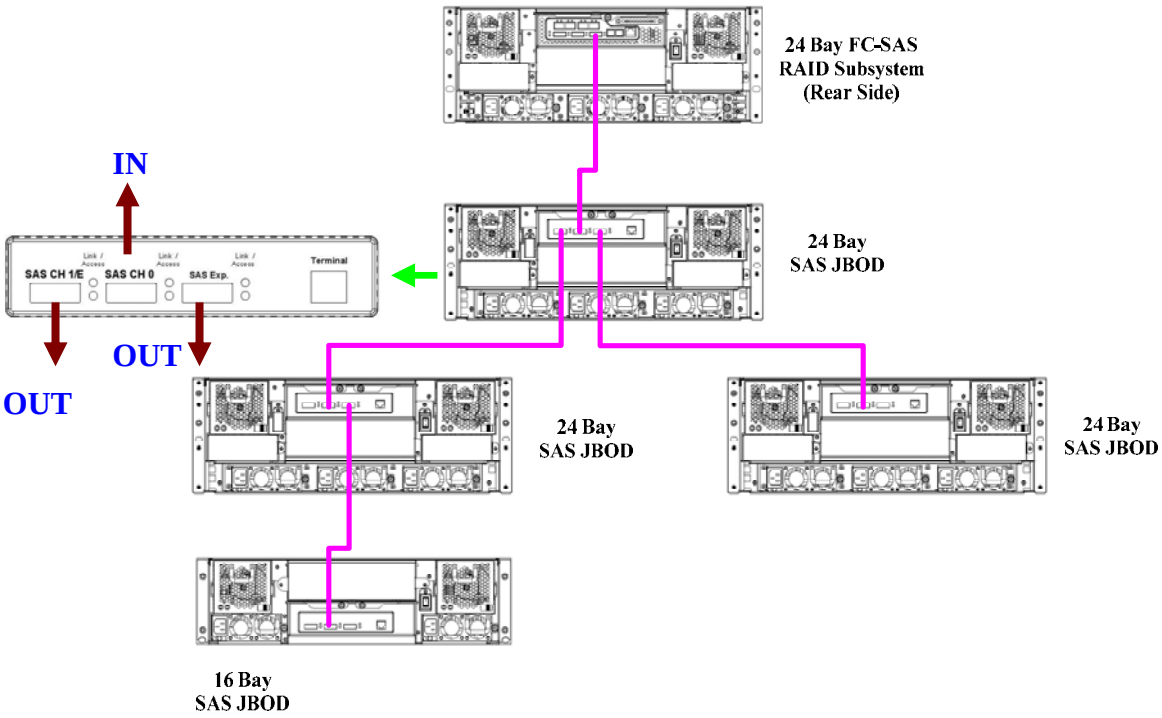
One SAS Raid subsystem with two SAS JBOD



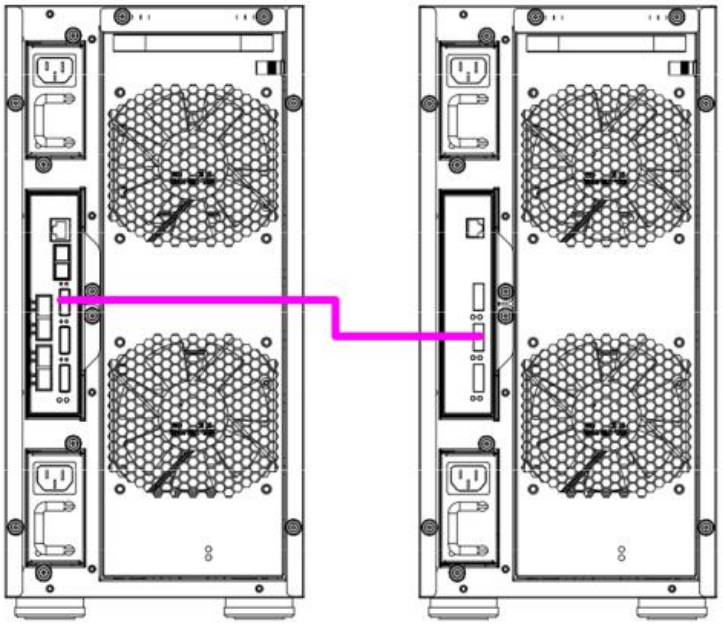
One SAS Raid subsystem with three SAS JBOD



One SAS Raid subsystem with four SAS JBOD



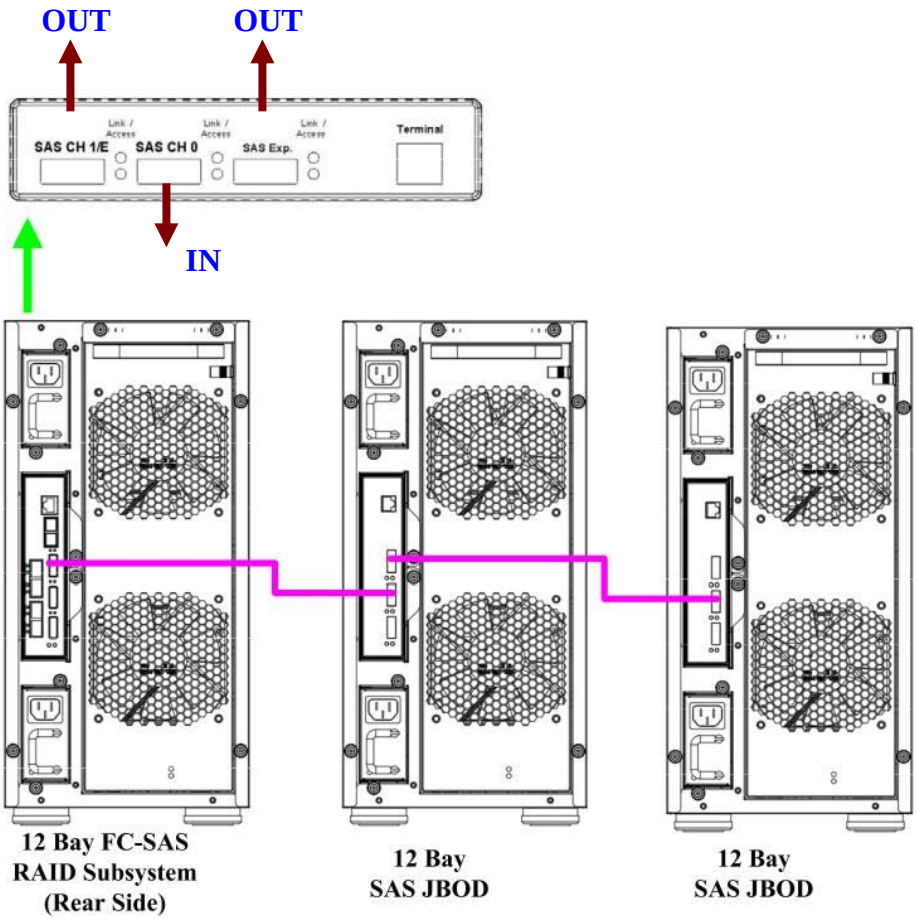
One SAS Raid subsystem with one SAS JBOD(Tower)



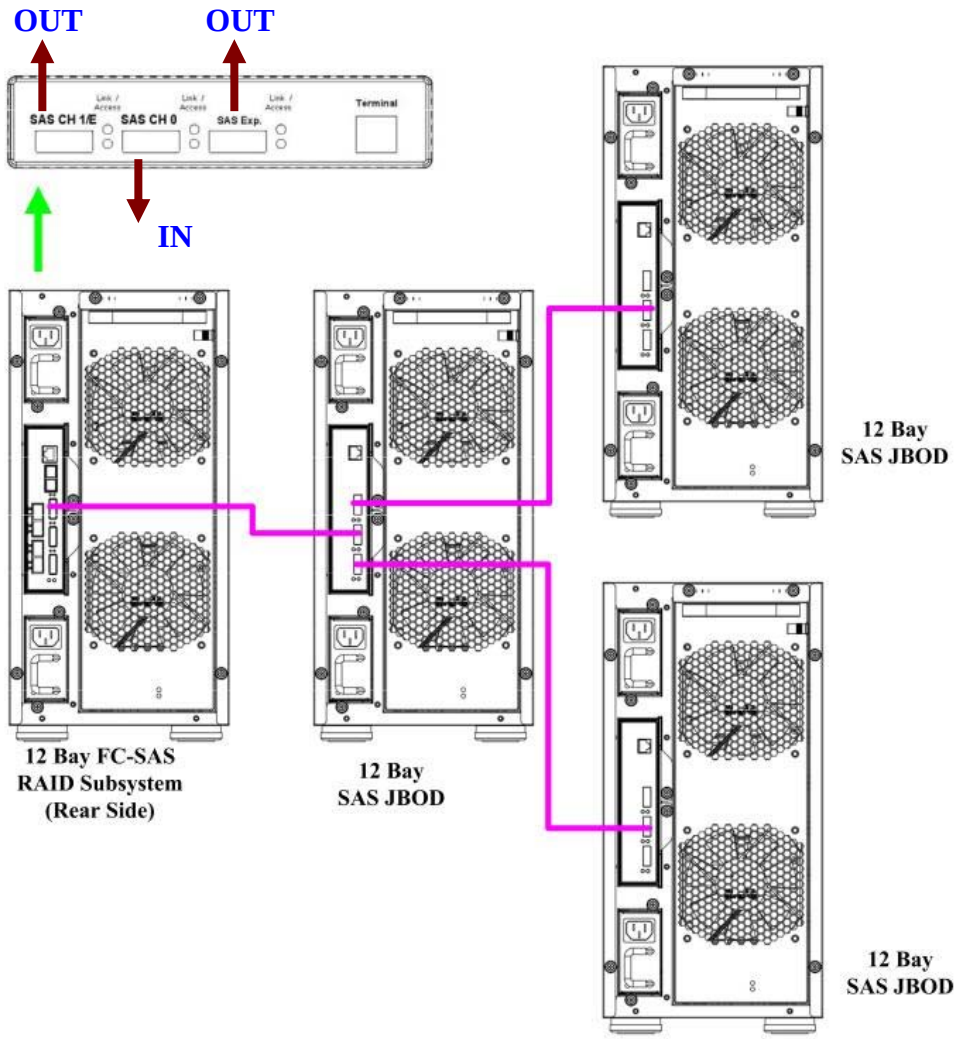
12 Bay FC-SAS
RAID Subsystem

12 Bay
SAS JBOD

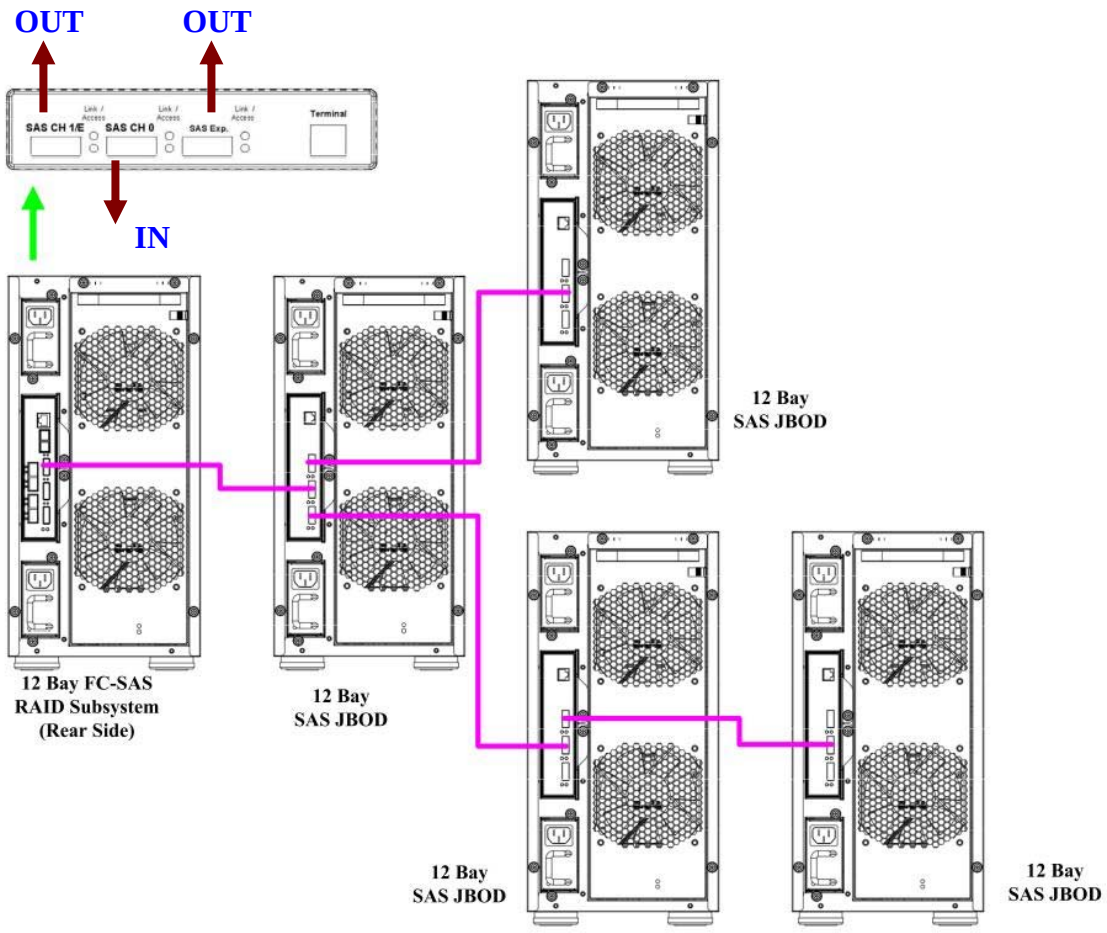
One SAS Raid subsystem with two SAS JBOD(Tower)



One SAS Raid subsystem with three SAS JBOD(Tower)



One SAS Raid subsystem with four SAS JBOD(Tower)



It supports up to four tiers and 122 SAS/SATAII peripheral devices (SAS/SATA HDDs + Raid Enclosures) by using SAS expanders.

- One Volume Set supports up to 32 HDDs
- One SAS Raid subsystem supports up to 128 Volumes
- One SAS Raid subsystem supports up to 122 SAS/SATAII peripheral devices (SAS/SATA HDDs + Raid Enclosures) by using SAS expanders.

There are four tiers within JBOD topology as above:

- First tier is a RAID System.
- Second tier is a SAS JBOD with a SAS CH0 on it. Connecting SAS CH0 to SAS exp. Port on RAID System via a Mini SAS to Mini SAS Cable.
- Third tier could be two SAS JBODs with a SAS CH0 port individually. One is connected to the SAS EXP. Port on the second tier SAS JBOD via a Mini SAS to Mini SAS Cable. Another is connected to the SAS CH1/E Port on the second tier SAS JBOD.
- Fourth tier is a SAS JBOD with a SAS CH0 on it. Connecting SAS CH0 to SAS exp. Port on third tier SAS JBOD via a Mini SAS to Mini SAS Cable.

Note

It is often recommended to install the hard drive with same brand, model no., interface and capacity in this RAID subsystem.

Please do not install SAS and SATA hard drives at the same time, as these hard drives spin at different speed and may lead to compatible issues or performance decline.

RAID members need to be included at the same enclosure which means you need to create array in the same enclosure. If RAID members are created from two or more different enclosures, there would be some risks (for example: if a mini-SAS cable gets problem, more RAID members will be lost, volume sets belong to this Array may be failed. Shutdown RAID and JBOD to fix problem, after that, turn on JBOD and RAID system again and controller will get array back, but in some case it may not get the array back)

Turning on for the first time

When cabling is completed, SAS RAID system + SAS JBOD system can be turned on. This should be done in the following order:

1. First turn on the power switch of "SAS JBOD" system.

2. Then turn on the power switch of "SAS RAID" system

3. Power on and boot the host computer(s)

Turning off

When turning off SAS RAID system + SAS JBOD system, users are advised to first shut down the server, then power off SAS RAID SYSTEM ,finally power off SAS JBOD SYSTEM.

Appendix A

Setup CLI connection

The SAS JBOD has a Command Line Interface (CLI) to manage all of its functions, including customization. Access the CLI via your PC's terminal VT100 or ANSI emulation program, such as Microsoft HyperTerminal.

With the SAS JBOD running and the RS-232 cable connected to the Terminal port on SAS JBOD

1. Open any UART communication tools like Hype Terminal
- **Bits per second: 115200**
- **Data bits: 8**
- **Parity: None**
- **Stop bits: 1**

2. press any key on HyperTerminal window, the window will show " Password:" prompt (Default Password: 0000)
3. Enter Password, the window will show "CLI>" prompt

4. Type help will show help screen.

CLI Command Set

The CLI has the following set of commands:

HELP - Show All CLI commands and its usage

Usage: help

Example:

CLI>help

Test	Command
Set Password	**pass**
logout CLI shell	**lo**
Link rate Control	**link Index(D) High-Rate(D) Low-Rate(D)** **link**
Temperature Control	**th Index(D) High-Warn(D) Low-Warn(D)** **th**
System Information	**sys**
Alarm Control	**bu {mute | [warning(D) critical(D)]}** **Bu**
Fan Speed Control	**fan LowestSpeed(D) WarningSpeed(D)** **fan**

Drive SpinUp Control	**spin Delay(D)[ms] Num(D)** **spin**
Store System Setting	**st**
List Devices Status	**lsd [hdd | temp | volt | pwr | con | ..]**
Resets the expander	**reset watchdog(optional)**
Route Table Read	**rtr Display[(Default)/d/z/dz]** **Default display enabled entries with a nonzero SAS address** **d include disabled entries** **z include entries with a zero SAS address** **dz display all entries**
Show the current logs	**showlogs DisplayMode(hex, detail, default)**
Clear the logs	**clearlogs**
Add string to the log	**log "string"**
File DownLoad	**fdl { code | mfgb |..} Buffer-Offset(H)** **Erase[Y(Default)/ N]**
Display Info for all phys	**phyinfo Help[?]**
Display/Reset all phy counters	**counters reset(optional)**

Display expander SAS address sasaddr

CLI Help help command

==========

Pass - Set Password

Usage: pass (Max. 8 chars, Min. 4 chars)

Example:

CLI>pass

Old Password:**

New Password:**

verify new Password:**

Update Successfully But Not Save Permanently!

LO - Logout CLI shell

Usage: lo

Example:

CLI>lo

Pasword:

LINK - Link rate Control

Usage: link

Example:

CLI>link

ArrayDevice Element (0x17):

==========

NAME	PHY	NLR	MAX	MIN	TYPE	ADDRESS
SLOT 01	7	6.0G	10	8	SAS	5000C500-103F7AA5
SLOT 02	6	6.0G	10	8	SAS	5000C500-10439631
SLOT 03	11	6.0G	10	8	SAS	5000C500-10438DFD
SLOT 04	10	6.0G	10	8	SATA	5001B4D5-060E700A
SLOT 05	3	6.0G	10	8	SATA	5001B4D5-060E7003
SLOT 06	4	6.0G	10	8	SATA	5001B4D5-060E7004
SLOT 07	12	6.0G	10	8	SATA	5001B4D5-060E700C
SLOT 08	14	6.0G	10	8	SATA	5001B4D5-060E700E
SLOT 09	1	6.0G	10	8	SATA	5001B4D5-060E7001
SLOT 10	2		10	8		
SLOT 11	13		10	8		
SLOT 12	15		10	8		
SLOT 13	5		10	8		
SLOT 14	0		10	8		
SLOT 15	8		10	8		
SLOT 16	9		10	8		

TH - Operate the Thermal Attribute

Usage: th

Example:

CLI>th

Temperature Element (0x04):

==========

NAME	ID	CT('C)	HTW	LTW	OTWarn
ENC. Temp	01	27	60	5	No
Chip Temp	02	53	85	5	No
Slot01 Temp	03	26	60	5	No
Slot02 Temp	04	28	60	5	No
Slot03 Temp	05	27	60	5	No
Slot04 Temp	06	NA	60	5	No
Slot05 Temp	07	NA	60	5	No
Slot06 Temp	08	NA	60	5	No
Slot07 Temp	09	NA	60	5	No
Slot08 Temp	10	NA	60	5	No
Slot09 Temp	11	NA	60	5	No
Slot10 Temp	12	NA	60	5	No
Slot11 Temp	13	NA	60	5	No
Slot12 Temp	14	NA	60	5	No
Slot13 Temp	15	NA	60	5	No
Slot14 Temp	16	NA	60	5	No
Slot15 Temp	17	NA	60	5	No
Slot16 Temp	18	NA	60	5	No

SYS - Print System Information

Usage: sys

Example:

CLI>sys

==========

Hardware Revision Information:-

==========

Vendor ID :
Model ID : AXS-8016
Serial No. : 8888888888888888
Unit Serial No. :
Expander SAS Address : 0x5001B4D5060E703F
Product Revision : 0
Exapnder Chip ID : 0x0221 (Ports : 28)
Exapnder Chip Revision : B3
Customer Code : 0x2
Manufacturer Data Revision : 0x05
Wroking Time : Day00000-00:22:03

==========

Firmware Revision Information:-

==========

Active Firmware: Active Image

Boot Image:
Revision: 7.B0.02.8F 11/15/10
Firmware Family: 1 OemFamily: 0
Fast Boot: No Image Address: 0x14000000

Active Image:
Revision: 7.B0.02.8F 11/15/10
Firmware Family: 1 OemFamily: 0
Fast Boot: No Image Address: 0x14080000

Backup Image:
Revision: 7.B0.02.8F 11/15/10

Firmware Family: 1 OemFamily: 0

Fast Boot: No Image Address: 0x14100000

HAL Revision: 0.7.0.0 SES Revision: 0.7.0.0 SCE Revision: 0.7.0.0

BU - Operate the Buzzer Attribute

Usage: bu [MUTE]

Example:

CLI>bu

AudibleAlarm Element (0x06):

==========

NAME	**STATUS**	**ALMSTATE**
Audible-Alarm	**Normal**	**0**

Current Alarm Attribute:

Warning Alarm: Sound2

Critical Alarm: Sound3

CLI>

turn off buzzer

CLI>bu mute

Alarm beep Muted

CLI>

FAN - Operate the Fan Attribute

Usage : fan

Example:

CLI>fan

Cooling Element (0x03):

==========

NAME	SPEED CODE	RPM	STATUS
Fan 01	5	3800	OK
Fan 02	5	3870	OK
Fan 03	5	3870	OK
Fan 04	5	3870	OK

Saved FAN Speed Attribute:

Lowest SpeedCode: 5

Warning SpeedCode: 7

ST - Store System Setting

Usage: st

Example:

CLI>st

ALL Of The User Configurations are Saved.

CLI>

LSD – List Devices Status

Usage: lsd

Example:

CLI>lsd

Show SES elements information

ArrayDevice Element (0x17):

==========

NAME	PHY	NLR	MAX	MIN	TYPE	ADDRESS
SLOT 01	7	6.0G	10	8	SAS	5000C500-103F7AA5
SLOT 02	6	6.0G	10	8	SAS	5000C500-10439631
SLOT 03	11	6.0G	10	8	SAS	5000C500-10438DFD
SLOT 04	10	6.0G	10	8	SATA	5001B4D5-060E700A
SLOT 05	3	6.0G	10	8	SATA	5001B4D5-060E7003
SLOT 06	4	6.0G	10	8	SATA	5001B4D5-060E7004
SLOT 07	12	6.0G	10	8	SATA	5001B4D5-060E700C
SLOT 08	14	6.0G	10	8	SATA	5001B4D5-060E700E
SLOT 09	1	6.0G	10	8	SATA	5001B4D5-060E7001
SLOT 10	2		10	8		
SLOT 11	13		10	8		
SLOT 12	15		10	8		
SLOT 13	5		10	8		
SLOT 14	0		10	8		
SLOT 15	8		10	8		
SLOT 16	9		10	8		

Connector Element (0x19):

==========

NAME	PHY	NLR	TYPE	ROUTE	CONNECTED-ADDRESS
Connector00	24	02			
Connector00	25	02			
Connector00	26	02			
Connector00	27	02			

```
Connector01   20   6.0G  02   S    5001B4D5-0163B03F
Connector01   21   6.0G  02   S    5001B4D5-0163B03F
Connector01   22   6.0G  02   S    5001B4D5-0163B03F
Connector01   23   6.0G  02   S    5001B4D5-0163B03F
Connector02   16        02
Connector02   17        02
Connector02   18        02
Connector02   19        02
```

Cooling Element (0x03):

==========

NAME	SPEED CODE	RPM	STATUS
Fan 01	5	3800	OK
Fan 02	5	3870	OK
Fan 03	5	3870	OK
Fan 04	5	3870	OK

Temperature Element (0x04):

==========

NAME	ID	CT('C)	HTW	LTW	OTWarn
ENC. Temp	01	27	60	5	No
Chip Temp	02	37	85	5	No
Slot01 Temp	03	27	60	5	No
Slot02 Temp	04	28	60	5	No
Slot03 Temp	05	27	60	5	No
Slot04 Temp	06	27	60	5	No
Slot05 Temp	07	27	60	5	No
Slot06 Temp	08	27	60	5	No
Slot07 Temp	09	27	60	5	No
Slot08 Temp	10	27	60	5	No

Slot09 Temp	**11**	**26**	**60**	**5**	**No**
Slot10 Temp	**12**	**NA**	**60**	**5**	**No**
Slot11 Temp	**13**	**NA**	**60**	**5**	**No**
Slot12 Temp	**14**	**NA**	**60**	**5**	**No**
Slot13 Temp	**15**	**NA**	**60**	**5**	**No**
Slot14 Temp	**16**	**NA**	**60**	**5**	**No**
Slot15 Temp	**17**	**NA**	**60**	**5**	**No**
Slot16 Temp	**18**	**NA**	**60**	**5**	**No**

Voltage Element (0x12):

==========

NAME	VOLT(V)	OVLMT	UVLMT	STATUS
1V	0.97	1.07	0.94	None
5V	5.04	5.32	4.63	None
3.3V	3.21	3.53	3.05	None
12V	11.92	12.80	11.12	None

PowerSupply Element (0x02):

==========

NAME	STATUS
PowerSupply01	OK
PowerSupply02	OK

AudibleAlarm Element (0x06):

==========

NAME	STATUS	ALMSTATE
Audible-Alarm	Normal	None

CLI>

RESET - System Software Reset

Usage: reset ➔ Reset SAS JBOD

SHOWLOGS - Print System Log.

Usage: showlogs

CLEARLOGS - Print System Log.

Usage: showlogs

FDL - File DownLoad

Usage: fdl { code | mfgb } offset ➔ Upgrade F/W command

Then use XModem/(Checksum) protocol transmit file to update ROM Region

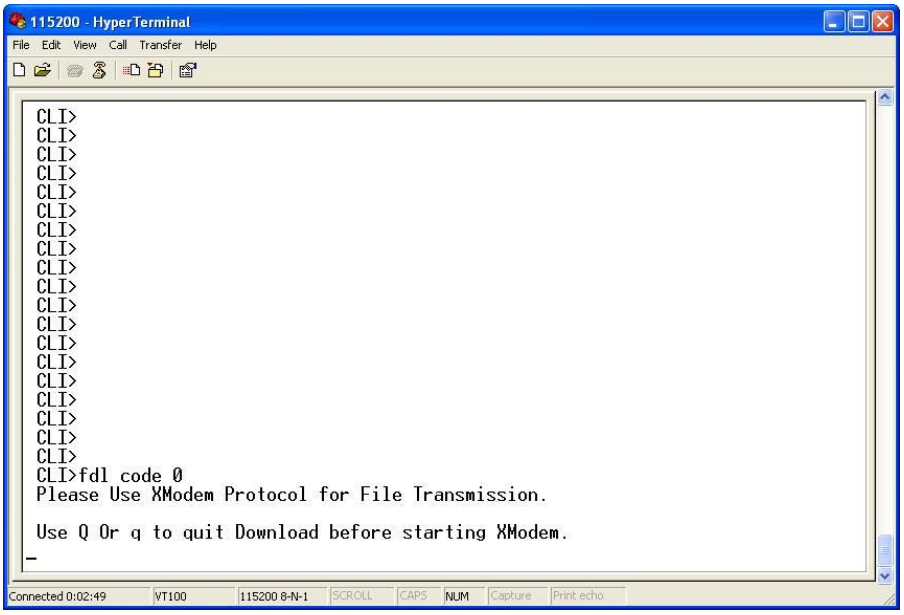
Appendix B

SAS JBOD firmware update procedure

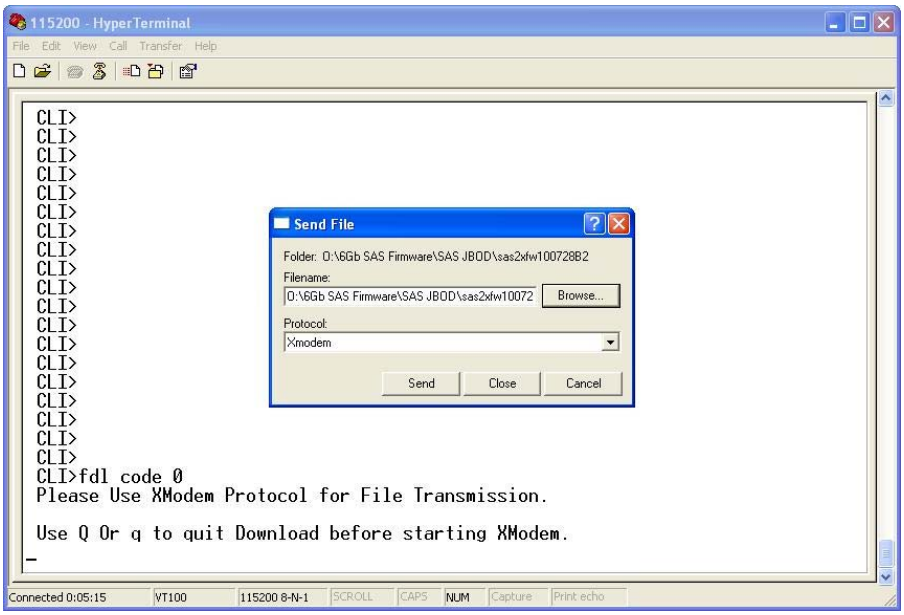
The procedure to update firmware thru UART:

1.) One commands to update firmware, step as follow,

2.) First type "fdl code 0" under "CLI>" prompt,



3.) Then under hyper terminal click “file” at top to pull down the menu. Choose "Xmodem" and select the firmware file in the directory then press send to attach file. If file is receiving within the timeout limit (60sec), then firmware update will proceed. If a timeout message appear, please retry the step 2 again.



The firmware date are presented in the following filename format,

a.) FW file(code):sas2xfwXXXX.fw

b.) Data file(mfgb): mfgdat6gYYYY.rom

5.) Firmware update can be cancel by pressing Q or q.

6.) Perform a cold-start again after updated the firmware.

7.) After updating firmware, repeat steps 1-6 to update the Data File but with different command.

CLI> fdl mfgb 0

Then use file "mfgdata.rom" to update the Datafile.

8.) After both files are updated, restart the expander.

Appendix C

Specifications

Y3-24S6JS6/Y3-16S6JS6/Y3-12S6JS6

Model	Y3-24S6JS6	Y3-16S6JS6	Y3-12S6JS6
	SAS	SAS	SAS
System Type	Rack mountable		
Host Interface	One 4 x 6Gb/s SAS Ports, Standard Mini SAS connectors		
Host Transfer Rate	4 x 6Gb/ Sec per port		
Disk Interface	SAS 6Gb / SATA 6Gb		
Disk Channel	24 Bay Disk Channels	16 Bay Disk Channels	12 Bay Disk Channels
Hot Swap and redundant	Yes (Power Supply, Drive and Fan).		
Hot Spare	Yes (Drive).		
Enclosure Monitoring (SES)	In Band SES via SAS		
Remote Terminal Configuration	Yes. Through Terminal port		
Operating Systems	O/S Independent and Transparent		
Power Supply	460+460+460 watts Redundancy high quality power system, Three 460 watts module with PFC function. Load sharing type and cable-less design with Redundancy Three Power inlet	460+460 watts Redundancy high quality power system, two 460 watts module with PFC function. Load sharing type and cable-less design with Redundancy Dual Power inlet	400+400 watts Redundancy high quality power system, two 400 watts module with PFC function. Load sharing type and cable-less design with Redundancy Dual Power inlet
Electrical	AC Voltage 100-240 VAC Ac Frequency 47-63Hz		
Temperature	Operating Temperature: 5 to 35 degree C. Non Operating Temperature: -40 to 60 degree C.		
Relative Humidity	20% to 80% non-condensing		
Dimensions	446.6mm(W)*560mm(D)*4U(H)	446.6mm(W)*560mm(D)*3U(H)	446.6mm(W)*560mm(D)*2U(H)

Y3-12S6JS6-D

Model	Y3-12S6JS6-D
	SAS
System Type	Tower
Host Interface	One 4 x 6Gb/s SAS Ports, Standard Mini SAS connectors
Host Transfer Rate	4 x 6Gb/ Sec per port
Disk Interface	SAS 6Gb / SATA 6Gb
Disk Channel	12 Bay Disk Channels
Hot Swap and redundant	Yes (Power Supply, Drive and Fan).
Hot Spare	Yes (Drive).
Enclosure Monitoring (SES)	In Band SES via SAS
Remote Terminal Configuration	Yes. Through Terminal port
Operating Systems	O/S Independent and Transparent
Power Supply	400+400 watts Redundancy high quality power system, two 400 watts module with PFC function. Load sharing type and cable-less design with Redundancy Dual Power inlet
Electrical	AC Voltage 100-240 VAC Ac Frequency 47-63Hz
Temperature	Operating Temperature: 5 to 35 degree C. Non Operating Temperature: -40 to 60 degree C.
Relative Humidity	20% to 80% non-condensing
Dimensions	214mm(W) x 426mm(D) x 439mm(H)

Note

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